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A COMPARATIVE STUDY ON GENATIC INFLUENCE ON TEMPERAMENT OF MONOZYGOTIC TWINS IN TWO CULTURAL ZONES

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ABSTRACT

The study was to compare the temperament of monozygotic twins in the age group of 4 -10 years. The present study was conducted in four districts namely; Hisar Fatehabad, Rohtak, and Jind of Haryana state with the purpose of availability of maximum numbers of twins in the required age group identified under UGC project of the department. A sample of 104monozygotic twins was shorted out from already identified twins from two cultural zones. There was Childe temperament was dependent variable and cultural zones were the independent variable in this study. Child's temperament was assessed with the help of Malhotra's Temperament Schedule (MTS, 1988). The result shows that the monozygotic twins of bar zone performed better than the khadar zone monozygotic twins.

KEYWORDS: Child Temperament, Twins, Genetic, Monozygotic, Environment & Behavior Problems

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INTRODUCTION

The research of temperament is primitive but recently turns into a rapidly growing research area in child development. The study of temperament is a recent and rapidly growing area in psychology as the role of temperament in influencing developmental pathways and outcomes has now been recognized. Extreme difficult temperament is often viewed as a risk factor for later behavior problems (Hill, 2002). Temperament defined as person emotional and behavioral modes of response to environmental events (Shaffer and Kipp, 2007).

Heather (2005) stated that temperament is a good example of a trait that has been studied in twins. Identical twins reared apart are far more similar in temperament than fraternal twins. Moffitt (2005) attempted to find out the contribution of contribution of genetic and non- genetic influences in traits, characteristics, or patterns of behavior and concluded that the influence on behavior of monozygotic (MZ) twins was twice than that of dizygotic (DZ) twins because identical twins share all of their genetic material and fraternal (dizygotic) twins share approximately half of their genetic material. Plomin and Colledge (2001) reported that genetic background has a greater influence on temperament, the genetic background or the environmental influence.

Twin studies present the most frequently employed measure of temperament in infancy and childhood, provide strong evidence of genetic influences on temperament. Such studies find that MZ cotwins are more similar than DZ cotwins across a wide variety of temperament dimensions including emotionality, activity, shyness,

sociability, attention/persistence, approach, adaptability, distress, positive affect and negative effect. Although estimates of heritability tend to differ from sample to sample, they generally fall within the range of.20 to.60, suggesting that genetic differences among individuals account for approximately 20% to 60% of the variability of temperament within a population. With few exceptions (e.g., stability and rhythmicity, which show little genetic influence), there is no consistent pattern of differential heritability across dimensions (Cyphers LH *et. al*.2007).

Children are born with their natural style of interacting with or reacting to people, places, and things. This natural behavior style in everyday situations is known as temperament. Temperament refers to our inborn personality traits, which are genetic in nature. The different ways infants interact with and react to their environment and experiences are reflective of their temperament, or behavioral style.

Temperamental characteristics indicate how children with many stresses may do well, while some with little or no stress have difficulty. While some children are mild and joyful, others are irritable. Easy children are pleasant to care for and they may receive and give back plenty of affection and attention. The fussy, energetic and difficult child may cry and kick when given attention. As development unfolds, the fussy and difficult child may create problem to the caregiver and may receive less nurturance and affection. Many parents feel guilty and feel as if they have done something to harm their child because the difficult ones are not easy to rear. Temperament may make some children in certain environments more likely to have these problems. These 'risk factors' occur when there is a mismatch between the child's temperament and demands in the environment, i.e. a poor fit between the child's temperament and expectations for behavior in a particular situation. 'Easy' children may have 'protective' factors where mismatches are rare and the rate of conflict is low (Anonymous, 2011).

Temperament is an individual's innate style of responding to the environment in both behavioral and emotional ways (Griggs et al., 2009). All children have a temperament that will influence their emotions and how they adapt to change in their environments (Steinberg, 2004).

OBJECTIVE

To compare the temperament of monozygotic twins in two cultural zones

METHODOLOGY

The present study was conducted in four districts namely; Hisar Fatehabad, Rohtak, and Jind of Haryana state with the purpose of availability of maximum numbers of twins in the required age group of 4 -10 years identified under UGC project of the department. From these two zones, villages were selected on the basis of availability of twins in the required age groups. A sample of 104 twins was shorted out from already identified twins from two cultural zones. There was Childe temperament was dependent variable and cultural zones were the independent variable in this study. Child's temperament was assessed with the help of Malhotra's Temperament Schedule (MTS, 1988).

RESULTS AND DISCUSSIONS

Results on monozygotic twins indicated that significant difference was found between the bagar and khaddar zones of monozygotic twins on rhythmicity (2.26*) dimensions of temperament. But non-significant difference was found with sociability (0.86), emotionality (1.63), energy (0.31) and distractibility (1.74) domain of temperament on the basis of standard deviations. It is further mean comparison shows that the monozygotic twins of bar zone performed better than the

khadar zone monozygotic twins.

Table 1: Temperament Dimensions among Monozygotic Twins in Two Cultural Zones (N=104)

Dimensions of Temperament	Bagar (N=40) Mean±SD	Khadar (N=64) Mean±SD	Z Value
Sociability	11.79±1.25	11.66±1.50	0.86
Emotionality	8.09±0.96	7.90±1.19	1.63
Energy	7.41±1.14	7.37±1.07	0.31
Distractibility	3.93±0.60	4.06±0.79	1.74
Rhythmicity	4.08±0.60	3.92±0.68	2.26*
Total	**35.31 ±3.13**	**34.93± 3.16**	**1.06**

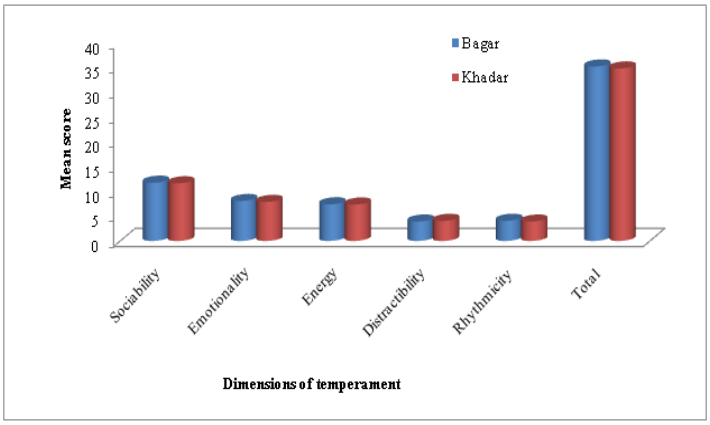

Figure 1: Mean Comparison of Temperament Dimensions among Monozygotic Twins in Two Cultural Zones

DISCUSSIONS

Results on monozygotic twins indicated that significant difference was found between the bagar and khaddar zones of monozygotic twins on rhythmicity dimensions of temperament. But non-significant difference was found with sociability, emotionality, energy and distractibility domain of temperament on the basis of standard deviations. It is further mean comparison shows that the monozygotic twins of bar zone performed better than the khadar zone monozygotic twins. Vernon *et al.* (2011) studied that fraternal twins, or dizygotic twins, share exactly half their genes with each other. They are not as optimal as identical twins for deciphering the degrees of genetic influence, but they are a very good basis for comparison for identical twins.

CONCLUSIONS

In other study Moffitt (2005) attempted to find out the contribution of contribution of genetic and non- genetic influences in traits, characteristics, or patterns of behavior and concluded that the influence on behavior of monozygotic (MZ) twins was twice than that of dizygotic (DZ) twins because identical twins share all of their genetic material and fraternal (dizygotic) twins share approximately half of their genetic material.

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